

# THOR HELICAL<sup>®</sup> WALL TIE TEST METER



## TEST METER

The HEL3700 Test Meter (Fig 1) is designed specifically for testing precise pitch helical wall tie systems. The unit comprises an integral bridging unit that houses a mechanical pulling arrangement, which is fitted through a hydraulic load cell. The Meter has an 800lbf (3.6kN) pressure gauge that directly measures the load applied to the helical tie.

Fig 1



A test key, (Fig 2) winds on to the tie and fits into one of two available holding points. When subjected to an axial load, the key bites into the tie giving approximately 1/16" (1.6mm) bedding in deflection at normal service loads



Fig 2

## TEST PURPOSE

Wall tie testing enables the specifying Engineer to determine the compatibility of a tie or a connection method with the materials of a building. Testing the anchorage in both inner and outer walls identifies the connection with the least load resistance, this being the governing factor in the design of a wall tie system. In-service testing is a verification of product and process performance that can be used as part of a Project Quality Planning and Recording mechanism.

## METHOD - TEST SET UP

### NEAR WALL LAYER:

- 1 Drive helical tie into and through the near layer, leaving at least 3/2" (90mm) of the tie protruding
- 2 Place Test Meter over protruding tie.
- 3 Wind test key through the top of Tester (Fig 3) & onto the tie.
- 4 Seat key into recess on top of the Meter to lock rotationally.

Fig 3



### REMOTE WALL LAYER:



Fig 4

- 1 Drive helical wall tie into the far wall layer via a clearance bore provided to the near wall layer.
- 2 Feed test key through clearance bore in the near wall and wind onto the tie.
- 3 Lock Meters lower grabber onto key head (Fig 4).

## METHOD - TEST PROCEDURE

- 1 Turn knurled nut clockwise to apply a bedding-in load of about 50lbf (0.22kN).
- 2 Tighten with Tommy Bar, increasing strain on the tie up to the desired tensile load.
- 3 Record gauge reading.
- 4 Record displacement as indicated by the deflection pointer or, for laboratory testing, by a DTI gauge that is been seated thereon (Fig 5).
- 5 Wind knurled nut counter clockwise to release the load and to permit withdrawal of the test key.

Fig 5



| NOMINAL TIE Ø |          | TEST KEY | RECOMMENDED MAXIMUM LOAD |          |
|---------------|----------|----------|--------------------------|----------|
| METRIC        | IMPERIAL |          | METRIC                   | IMPERIAL |
| 5mm           | 3/16"    | M5*      | 2.0kN                    | 450lbf   |
| 6mm           | 1/4"     | M6*      | 2.5kN                    | 560lbf   |
| 7mm           | 9/32"    | M7.      | 3.0kN                    | 675lbf   |
| 8mm           | 5/16"    | M8.      | 3.5kN                    | 800lbf   |
| 9mm           | 3/8"     | M9.      | 3.5kN                    | 800lbf   |

\* Special Order Test Keys

## CARE & ATTENTION

The Test Meter is a precise measuring unit, which is supplied in a robust protective case. Critical to the reliability and accuracy of this compact measuring apparatus is user care and routine maintenance.

- ✓ Keep piston rim and load stud free from detritus.
  - ✓ Keep central load stud lightly lubricated.
  - ✓ Keep Test Meter boxed when not in use.
  - ✓ Service and re-calibrate the Test Meter at least once in every 12month period - sooner if the gauge or Meter is damaged.
- ⚠ Do not exceed maximum load capacity.
  - ⚠ Avoid continuous loading for periods greater than 1/2 hour.
  - ⚠ Do not expose the Test Meter to extreme temperature increase (e.g. avoid prolonged exposure to intense sunlight).
  - ⚠ When carrying out tensile load tests on fixings secured to construction materials the loads applied usually exceed the design service load for the fixing system. Users must take care to protect themselves and others from the effect of sudden failures